

ATTORNEY DOCKET NO. 00-C-016 (STMI01-00016)
U.S. SERIAL NO. 09/656,984
PATENT

IN THE CLAIMS:

Please cancel claims 9-20 without prejudice. Please amend the remaining claims as follows, substituting any amended claim(s) for the corresponding pending claim(s):

1 1. (twice amended) A method of providing electrostatic discharge protection for an integrated
2 circuit, comprising:

3 mounting an integrated circuit die on a lead frame;

4 encapsulating at least part of the integrated circuit die and a portion of the lead frame

5 with a plastic or epoxy material; and

6 folding an unencapsulated portion of the lead frame around sides of the encapsulated

7 integrated circuit die and over or adjacent to a peripheral upper surface of the plastic or epoxy

8 material.

1 2. (unchanged) The method of claim 1, further comprising:

2 connecting the portion of the lead frame folded around the sides of the encapsulated

3 integrated circuit die and over or adjacent to the peripheral upper surface of the plastic or epoxy

4 material to a ground voltage.

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1 3. (unchanged) The method of claim 1, wherein the step of encapsulating at least part of the
2 integrated circuit die with a plastic or epoxy material further comprising:
3 after mounting the integrated circuit die on the lead frame, encapsulating exposed
4 surfaces of the integrated circuit die except for a sensing surface; and
5 encapsulating wire bonds connecting the integrated circuit die to portions of the lead
6 frame.

1 4. (unchanged) The method of claim 1, wherein the step of folding a portion of the lead frame
2 around sides of the encapsulated integrated circuit die and over or adjacent to a peripheral upper
3 surface of the plastic or epoxy material further comprising:
4 folding portions of the lead frame around each side of the encapsulated integrated circuit
5 die.

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1 5. (unchanged) The method of claim 1, wherein the step of folding a portion of the lead frame
2 around sides of the encapsulated integrated circuit die and over or adjacent to a peripheral upper
3 surface of the plastic or epoxy material further comprising:

4 folding a first portion of the lead frame around a first side of the encapsulated integrated
5 circuit die, wherein the first portion includes an opening providing access for a connector to pins
6 electrically connected to the integrated circuit die.

1 6. (unchanged) The method of claim 1, wherein the step of folding a portion of the lead frame
2 around sides of the encapsulated integrated circuit die and over or adjacent to a peripheral upper
3 surface of the plastic or epoxy material further comprising:

4 folding portions of the lead frame around edges of the encapsulated integrated circuit die
5 not including leads electrically connected to the integrated circuit die.

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1 7. (unchanged) The method of claim 1, wherein the step of folding a portion of the lead frame
2 around sides of the encapsulated integrated circuit die and over or adjacent to a peripheral upper
3 surface of the plastic or epoxy material further comprising:

4 folding a first portion of the lead frame around a side of the encapsulated integrated
5 circuit die; and

6 folding a second portion of the lead frame extending from the first portion over a
7 peripheral upper surface of the encapsulated integrated circuit die.

1 8. (unchanged) The method of claim 1, wherein the step of folding a portion of the lead frame
2 around sides of the encapsulated integrated circuit die and over or adjacent to a peripheral upper
3 surface of the plastic or epoxy material further comprising:

4 folding a first portion of the lead frame around a side of the encapsulated integrated
5 circuit die; and

6 folding a second portion of the lead frame extending from the first portion adjacent to
7 and level with a peripheral upper surface of the encapsulated integrated circuit die.

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1 21. (unchanged) A method of providing electrostatic discharge protection for an integrated
2 circuit, comprising:

3 encapsulating at least part of an integrated circuit die mounted on a lead frame and a
4 portion of the lead frame with a plastic or epoxy material, leaving lead portions and an
5 electrostatic discharge protection portion of the lead frame unencapsulated; and

6 folding the electrostatic discharge protection portion of the lead frame around the
7 encapsulated integrated circuit die and over or adjacent to a surface of the plastic or epoxy
8 material.

1 22. (unchanged) The method of claim 21, wherein the step of encapsulating at least part of an
2 integrated circuit die mounted on a lead frame and a portion of the lead frame with a plastic or
3 epoxy material, leaving lead portions and an electrostatic discharge protection portion of the
4 lead frame unencapsulated further comprises:

5 forming the plastic or epoxy material over one surface and sidewalls of the integrated
6 circuit die and over portions of a surface of the lead frame on which the integrated circuit die
7 is mounted, leaving an opposite surface of the lead frame and the lead portions and the
8 electrostatic discharge protection portion of the lead frame unencapsulated.

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1 23. (unchanged) The method of claim 21, wherein the step of encapsulating at least part of an
2 integrated circuit die mounted on a lead frame and a portion of the lead frame with a plastic or
3 epoxy material, leaving lead portions and an electrostatic discharge protection portion of the
4 lead frame unencapsulated further comprises:

5 leaving a contact surface of the integrated circuit die exposed.

1 24. (unchanged) The method of claim 21, further comprising:

2 mounting the integrated circuit die on a flat lead frame having the lead portions
3 projecting from at least one edge and the electrostatic discharge protection portion projecting
4 from at least one edge.

1 25. (unchanged) The method of claim 24, wherein the electrostatic discharge protection portion
2 of the lead frame projects from an edge other than an edge from which the lead portions project.

1 26. (unchanged) The method of claim 24, wherein the electrostatic discharge protection portion
2 of the lead frame projects from an edge from which the lead portions project, the electrostatic
3 discharge protection portion extending around the lead portions and beyond ends of the lead
4 portions.

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1 27. (unchanged) The method of claim 24, wherein the electrostatic discharge protection portion
2 of the lead frame projects from at least two opposing edges of the lead frame.

1 28. (unchanged) The method of claim 28, wherein the electrostatic discharge protection portion
2 of the lead frame projects from at least three edges of the lead frame, including one edge from
3 which the lead portions project.

1 29. (unchanged) A method of providing electrostatic discharge protection for an integrated
2 circuit, comprising:
3 forming a flat lead frame having lead portions and an electrostatic discharge protection
4 portion extending from edges thereof;
5 mounting an integrated circuit die on a surface of the lead frame and encapsulating the
6 at least sides of the integrated circuit die and a portion of the lead frame surface on which the
7 integrated circuit die is mounted with an encapsulating material, leaving the lead portions and
8 the electrostatic discharge protection portion of the lead frame projecting beyond the
9 encapsulating material;
10 folding the electrostatic discharge protection portion of the lead frame around one or
11 more sides of the encapsulating material.

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1 30. (unchanged) The method of claim 29, wherein the step of folding the electrostatic discharge
2 protection portion of the lead frame around one or more sides of the encapsulating material
3 further comprises:

4 folding the electrostatic discharge protection portion of the lead frame to extend along
5 the sides of the encapsulating material; and

6 folding the electrostatic discharge protection portion of the lead frame to extend over a
7 periphery of a surface of the encapsulating material opposite the lead frame.

1 31. (unchanged) The method of claim 29, wherein the step of folding the electrostatic discharge
2 protection portion of the lead frame around one or more sides of the encapsulating material
3 further comprises:

4 folding the electrostatic discharge protection portion of the lead frame to extend along
5 the sides of the encapsulating material; and

6 folding the electrostatic discharge protection portion of the lead frame to extend adjacent
7 to a surface of the encapsulating material opposite the lead frame.

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- 1 32. (unchanged) The method of claim 29, wherein the step of folding the electrostatic discharge
2 protection portion of the lead frame around one or more sides of the encapsulating material
3 further comprises:
4 folding the electrostatic discharge protection portion of the lead frame around at least
5 two opposing sides of the encapsulating material.